Abstract

Filter assemblies that manage the movement of gases and water to and from the anode and cathode of fuel cells. The assemblies are particularly suited for methanol and other liquid fuel sources for portable hydrogen fuel cells. These fuel cells and filter elements can be used with equipment such as telephones, personal computing devices, lap top computers, and pagers. The invention provides a filter assembly that forms a selectively permeable barrier between the exterior of the fuel cell and the cathode. The filter assembly manages the exposure of the cathode to particulate and gaseous materials. The filter assembly can also manage the movement of water. The invention also provides a filter assembly that forms a selectively permeable barrier between liquid (e.g., methanol and water) and the exterior of the fuel cell. The filter assembly manages the movement of liquids and gaseous materials away from the anode.